

EXPRESS MAIL NO. EL563154917US

CLAIMS

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1. A computer network comprising:
 - 2 a file server;
 - 3 a file server application installed on the file server;
 - 4 a client computer;
 - 5 a client application installed on the client computer;
 - 6 a proxy server application installed on the file server, the proxy server application
 - 7 operative to receive a file request from the client application, send a client side applet to
 - 8 the client computer and send the client side applet information selected from a group of
 - 9 the availability of network resources consisting of a time to start a download of the file,
 - 10 a time to complete the download of the file, and a count of other file requests received
 - by the file server.

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2. A method for managing request for resources received at a file server comprising steps of:

receiving a request for an information resource by a proxy server application from a client application;

recording information relative to the request in a database;

sending an applet to the client computer;

accessing the database to obtain information relative to one or more other requests for information resources;

determining the availability of one or more network resources selected from a group of available network resources consisting of time to start a download in response to the request for an information resource, a time to complete the download in response to the request for an information resource, and a count of prior requests received for information resources; and

sending information relative to the one or more quantities to the applet.

3. The method of claim 2 further comprising steps of:

receiving a status request from the applet by the proxy server application,

re-determining the availability of one or more network resources selected from a group of available network resources consisting of time to start a download in response to the request for an information resource, a time to complete the download in response to the request for an information resource, and a count of prior requests received for information resources; and

sending updated information relative to the one or more quantities to the applet.

4. The method of claim 2 further comprising steps of:

accessing a file size corresponding to the requested information resource; and
comparing the file size to a limit value.

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1 5. The method of claim 2 further comprising a step of:
2 comparing a file type of a file corresponding the requested information resource
3 to a list of one or more file types.

1 6. The method of claim 2 further comprising steps of:
2 receiving a status request from the applet by the proxy server application; and
3 checking if the server load is below a threshold after receiving the status request
4 from the applet.

1 7. The method of claim 6 further comprising steps of:
2 checking if the client is next in a queue after receiving the status request from the
3 applet.

1 8. The method of claim 2 further comprising steps of:
2 receiving a status request from the applet by the proxy server application; and
3 checking if the client is next in a queue after receiving the status request from the
4 applet.

1 9. The method of claim 8 further comprising steps of:
2 re-determining the availability of one or more network resources selected from a
3 group of available network resources consisting of time to start a download in response
4 to the request for an information resource, a time to complete the download in response
5 to the request for an information resource, and a count of prior requests received for
6 information resources; and
7 sending updated information relative to the one or more quantities to the applet.

1 10. The method of claim 9 further comprising a step of:
2 checking if the server load is below a threshold after receiving the status request
3 from the applet.

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1 11. A computer readable medium containing programming instructions for managing
2 request for resources received at a file server comprising programming instructions for:
3 receiving a request for an information resource by a proxy server application
4 from a client application;
5 recording information relative to the request in a database;
6 sending an applet to the client computer;
7 accessing the database to obtain information relative to one or more other
8 requests for information resources;
9 determining the availability of one or more network resources selected from a
10 group of available network resources consisting of time to start a download in response
11 to the request for an information resource, a time to complete the download in response
12 to the request for an information resource, and a count of prior requests received for
13 information resources; and
14 sending information relative to the one or more quantities to the applet.

12. The computer readable medium of claim 11 further comprising programming
instructions for:
receiving a status request from the applet by the proxy server application,
re-determining the availability of one or more network resources selected from a
group of available network resources consisting of time to start a download in response
to the request for an information resource, a time to complete the download in response
to the request for an information resource, and a count of prior requests received for
information resources; and
sending updated information relative to the one or more quantities to the applet.

1 13. The computer readable medium of claim 11 further comprising programming
2 instructions for:
3 accessing a file size corresponding to the requested information resource; and
4 comparing the file size to a limit value.

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1 14. The computer readable medium of claim 11 further comprising programming
2 instructions for:

3 comparing a file type of a file corresponding the requested information resource
4 to a list of one or more file types.

1 15. The computer readable medium of claim 11 further comprising programming
2 instructions for:

3 receiving a status request from the applet by the proxy server application; and
4 checking if the server load is below a threshold after receiving the status request
5 from the applet.

1 16. The computer readable medium of claim 15 further comprising programming
2 instructions for:

3 checking if the client is next in a queue after receiving the status request from the
4 applet.

1 17. The computer readable medium of claim 11 further comprising programming
2 instructions for:

3 receiving a status request from the applet by the proxy server application; and
4 checking if the client is next in a queue after receiving the status request from the
5 applet.

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1 18. The computer readable medium of claim 17 further comprising programming
2 instructions for:

3 re-determining the availability of one or more network resources selected from a
4 group of available network resources consisting of time to start a download in response
5 to the request for an information resource, a time to complete the download in response
6 to the request for an information resource, and a count of prior requests received for
7 information resources; and

8 sending updated information relative to the one or more quantities to the applet.

1 19. The computer readable medium of claim 18 further comprising programming
2 instructions for:

3 checking if the server load is below a threshold after receiving the status request
4 from the applet.

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- 1 20. A system for managing the available bandwidth through a gateway from a first
2 network to a second network comprising:
3 a plurality of client applications;
4 a plurality of client side components which interoperate with the plurality of client
5 applications, each client side component being operative to receive information
6 resource requests from the client applications, to read a corresponding threshold time
7 value, and to send the information resource request and the corresponding threshold
8 time value to a proxy server component;
9 the proxy server component operative to receive a plurality of information
10 resource requests and corresponding threshold time values from the plurality of client
11 side components, the proxy server component comprising:
12 means for matching up a group of information resource requests
13 according to a resource identification included in each resource request,
14 means for deriving a threshold value for the group; and
15 means for issuing a single resource request corresponding to the group of
16 information resource requests.
- 17 21. The system of claim 20, wherein the proxy server component is further operative
18 to receive a response to the single resource request and send the resource request to a
19 group of the plurality of clients corresponding to the group of information resource
20 requests.

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1 22. A method for managing network traffic through a network node comprising steps
2 of:
3 receiving a plurality of information resource requests at a network node from a
4 plurality of clients;
5 reading a set of resource identifiers included in the plurality of information
6 resource requests; and
7 matching up a group of the plurality of information resource request according to
8 the set of resource identifiers.

1 23. A method according to claim 22 further comprising a step of:
2 issuing a single resource request for the group.

1 24. A method according to claim 22 further comprising steps of:
2 reading a set of threshold time values corresponding to the group;
3 deriving a group threshold time value from the set of threshold time values; and
4 issuing a single resource request for the group at a time indicated by the group
5 threshold time value.

1 25. A method according to claim 24 wherein the step of deriving a group threshold
2 value comprises a sub-step of:
3 selecting a minimum of the set of threshold values.

1 26. A method according to claim 22 further comprising a step of:
2 storing information derived from the plurality of information resource requests in
3 a cached request database.

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1 27. The method according to claim 26 wherein said step of matching comprises sub-
2 steps of:

3 receiving a new resource request including a new resource identifier
4 corresponding to the new resource request; and
5 searching the cached database to find a matching group of entries having a
6 resource identifier matching the new resource identifier.

1 28. The method according to claim 27 wherein said step of storing information
2 derived from the plurality of information resource requests in a cached request
3 database comprises a sub-step of:

4 storing a set of threshold time values corresponding to the plurality of information
5 resource requests in the cached request database.

1 29. The method according to claim 28 further comprising steps of:

2 reading a subset of the set of threshold time values corresponding to matching
3 group of entries; and

4 deriving a group threshold time value from the subset of the set of threshold time
5 values.

1 30. The method according to claim 29 wherein the step of deriving a group threshold
2 time value comprises a sub-step of:

3 selecting a minimum threshold time value from the subset of the set of threshold
4 time values.

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1 31. A computer readable medium containing programming instructions for managing
2 network traffic through a network node comprising programming instructions for:
3 receiving a plurality of information resource requests at a network node from a
4 plurality of clients;
5 reading a set of resource identifiers included in the plurality of information
6 resource requests; and
7 matching up a group of the plurality of information resource request according to
8 the set of resource identifiers.

1 32. A computer readable medium according to claim 31 further comprising
2 programming instructions for:
3 issuing a single resource request for the group.

4 33. A computer readable medium according to claim 31 further comprising
5 programming instructions for:
6 reading a set of threshold time values corresponding to the group;
7 deriving a group threshold time value from the set of threshold time values; and
8 issuing a single resource request for the group at a time indicated by the group
threshold time value.

1 34. A computer readable medium according to claim 33 wherein the programming
2 instructions for deriving a group threshold value comprise programming instructions for:
3 selecting a minimum of the set of threshold values.

1 35. A computer readable medium according to claim 31 further comprising
2 programming instructions for:
3 storing information derived from the plurality of information resource requests in
4 a cached request database.

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1 36. The computer readable medium according to claim 35 wherein said
2 programming instructions for matching comprises programming instructions for:
3 receiving a new resource request including a new resource identifier
4 corresponding to the new resource request; and
5 searching the cached database to find a matching group of entries having a
6 resource identifier matching the new resource identifier.

1 37. The computer readable medium according to claim 36 wherein said
2 programming instructions for storing information derived from the plurality of information
3 resource requests in a cached request database comprises programming instructions
4 for:
5 storing a set of threshold time values corresponding to the plurality of information
6 resource requests in the cached request database.

1 38. The computer readable medium according to claim 37 further comprising
2 programming instructions for:
3 reading a subset of the set of threshold time values corresponding to matching
4 group of entries; and
5 deriving a group threshold time value from the subset of the set of threshold time
6 values.

1 39. The computer readable medium according to claim 38 wherein the programming
2 instructions for deriving a group threshold time value comprises programming
3 instructions for:
4 selecting a minimum threshold time value from the subset of the set of threshold
5 time values.

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- 1 40. A network server comprising:
- 2 a server;
- 3 a server application installed on the server; and
- 4 a proxy server application installed on the server, the proxy server application
- 5 operative to receive a file request from a client application installed on at least one
- 6 client computer, send a client side applet to the client computer and send the client side
- 7 applet information selected from a group of the availability of network resources
- 8 consisting of a time to start a download of the file, a time to complete the download of
- 9 the file, and a count of other file requests received by the server.

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